

## BOOK REVIEWS

**Methods of Biochemical Analysis.** Edited by DAVID GLICK, Professor of Physiological Chemistry, University of Minnesota. Interscience Publishers, Inc., 250 Fifth Avenue, New York 1, N. Y. 1954. x + 521 pp. 61 × 23.5 cm. Price, \$9.50.

"Methods of Biochemical Analysis" is the first volume in yet another series of "Annual Reviews," devoted, as the title implies, entirely to methodology. The wide variation in the selection of topics, from the highly specialized to those of general interest, is particularly striking, the range extending from "Determination of Raffinose and Ketose in Plant Products" by de Whalley and Gross to the excellent review of "Zone Electrophoresis" by Kunkel. The contributors are selected from laboratories in many different locations, three of the reviews coming from England, one from France and one from Denmark.

The topics cover techniques of microbiological assay, *i.e.*, "Microbiological Assay of Antibiotics" by Kersey and Fink and "Microbiological Assay of Vitamin B<sub>12</sub>" by Hoff-Jorgensen; various aspects of chromatography, *i.e.*, "Chromatographic Analysis of Radioactive Iodine Compounds from the Thyroid Gland and Body Fluids" by Roche, Lisitzky and Michel, "Chromatographic Separation of the Steroids of the Adrenal Gland" by Haines and Karnemaat and "Analysis of Mixtures of Sugars by Paper and Cellulose Column Chromatography" by Hough. Other reviews are concerned with the estimation of only a single compound, such as the article by Roe on "Chemical Determination of Ascorbic, Dehydroascorbic and Diketogulonic Acids" and "Chemical Estimation of Choline" by Engel, Salmon and Ackerman. Yet another group of articles discusses the problems involved in the analysis of classes of compounds of biological interest, such as "Estimation of Nucleic Acids" by Volkin and Cohn, "Determination of ATP and Related Compounds: Firefly Luminescence and Other Methods" by Strehler and Totter, "The Assay of Urinary Neutral 17-Ketosteroids" by Engel and "Analysis of Phenolic Compounds of Interest in Metabolism" by Bray and Thorpe. There are only two reviews dealing with enzymes, *i.e.* "The Assay of Catalases and Peroxidases" by Maehly and Chance and "The *in vitro* Determination of Hyaluronidase" by Tolksdorf; one chapter is devoted to "Determination of Sulfhydryl Groups in Certain Biological Substances" by Chinard and Hellerman, and de Lalla and Gofman describe the methods used by their group in a review on "Ultracentrifugal Analysis of Serum Lipoproteins."

In reading through these reviews one is struck by a dilemma which is liable to arise in a volume such as this. On the one hand, a worker might discuss one particular type of technique with which he is thoroughly familiar, such as electrophoresis, and the result is correspondingly authoritative. This is perhaps one reason for the excellence of Weissberger's "Physical Methods of Organic Chemistry." On the other hand, several reviews in the present volume attempt to evaluate a variety of methods which have been used for the assay of a group of compounds, with the result that certain techniques, which are less familiar to the author, are either entirely ignored or not treated satisfactorily. The discussion of polarographic methods in some of the reviews in "Methods of Biochemical Analysis" is a good example of this.

The editor states in his preface to the book that "The presentation of the experimental details is to be given in a manner that will furnish the laboratory worker with the complete information required to carry out the analyses." While this is true in some cases, some of the more complex procedures discussed, *e.g.*, ultracentrifugation, will certainly require more preparation than the reading of the corresponding chapter in this volume. Conversely, in some instances the description of experimental minutiae seems extreme, such as the detailed description of the construction and use of a Pasteur pipet, complete with elaborate diagram, or the "calculations," given repeatedly in some of the articles, for the conversion of a photometric or titrimetric reading to a concentration.

There is little doubt that this volume will make a useful

addition to the biochemical literature, since it contains a number of excellent and informative articles. In view of the heterogeneity of the topics covered, however, it is questionable whether many individuals would wish to purchase this book for the sake of one or the other review which is of interest to them. This reviewer would therefore like to suggest that "Methods of Biochemical Analysis" might be more useful to the individual working biochemist if each volume contained reviews of a cognate nature, either on a series of analytical methods used for the solution of problems in one field, *e.g.*, steroids, or alternately, on techniques used widely by nearly all biochemists, such as chromatography or microgasometry. This would be reminiscent of the many excellent "Symposia" volumes which have appeared recently.

DEPARTMENT OF BIOCHEMISTRY  
STATE UNIVERSITY OF IOWA  
IOWA CITY, IOWA

REINHOLD BENESCH

**An Advanced Treatise on Physical Chemistry.** Volume Four. **Physico-Chemical Optics.** By J. R. PARTINGTON, M.B.E., D.Sc., Emeritus Professor of Chemistry in the University of London. Longmans, Green and Co., Inc., 55 Fifth Avenue, New York 3, New York. 1953. xl + 688 pp. 16 × 26 cm. Price, \$15.00.

This new treatise on physico-chemical optics, the fourth volume of a well-received series on physical chemistry, should be of considerable value for chemists and physicists—not only advanced students, but also specialists in the various fields treated. The book covers the older literature on optics and brings the subject up to date with recent developments which were previously available only in various journals. In treating both early and also more recent material, the author has achieved a comprehensive coverage of the subject. However, some topics (*e.g.*, the properties of dielectrics as well as molecular spectra) which one might expect to find in such a treatise have been relegated to the next volume in this series. Such topics as the properties of lenses, diffraction gratings and the measurement of spectra have been omitted. The scope of the material may be seen by a consideration of the main topics covered: refraction of light, polarization of light, optical activity, electromagnetic theory of light, magnetic rotation, piezoelectricity, pyroelectricity, and an appendix giving some details and properties of mathematical functions. Each of these topics is considerably elaborated to give a wide coverage of physical optics.

The presentation is clear, logical and easily readable, and accompanied by numerous clear, illustrative figures, examples and tables of data. Further, the author has made an attempt to use the same notation for a given quantity in treating various subjects. Where this has not been possible he has at least taken the trouble to point out where the notation differs. In addition to making liberal use of data to illustrate the theory, the author continually connects theory with experiment, giving details of optical experiments, and principles for refractometers, interferometers, polarimeters and other optical instruments. In cases where a complete theory is still lacking, useful empirical relations are given. He also provides the reader with a phenomenal number of references to the original literature; the latter is at times, however, merely a compilation of references without any attempt to evaluate or even to indicate the significance of the papers cited.

As is commonly done in many books on physical optics, the theoretical principles are developed both from the fundamental experiments and interpretations according to the wave theory of Huygens, Young and Fresnel and also, later in the text, from the point of view of the electromagnetic theory of light of Maxwell and Hertz. These will have their usual usefulness for physical chemists who are making increasingly greater use of optical methods. However, what distinguishes this treatise from the usual texts on physical optics is the continual stress placed on the application to molecular properties in detailed treatments of molar refrac-